

MS 152-12

MGGB09-005035

Log

MGG 09005035

Laboratory Item 431

A SUMMARY OF SEDIMENT SIZE, CALCIUM CARBONATE, ORGANIC CARBON,
AND NITROGEN CONTENT OF EIGHT GRABS FROM NEW LONDON, CONNECTICUT
JUNE 1972 (CIVILIAN TUGBOAT WHITE FOOT)

Prepared by: J. C. Bowman
E. V. Kelly
P. B. Loomis

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GEOLOGICAL LABORATORY
NEARSHORE SURVEYS DIVISION
OCEANOGRAPHIC SURVEYS DEPARTMENT

U. S. NAVAL OCEANOGRAPHIC OFFICE
WASHINGTON, D. C. 20390

The results of the sediment size and composition analyses are printed out in tabular form.

The following is an explanation of the terms encountered on the data printout sheet:

<u>CRUISE</u>	A number assigned to each cruise for identification purposes.
<u>SAMPLE</u>	A consecutive number applied to each core taken successively throughout the cruise.
<u>LATITUDE</u>	Expressed in degrees, minutes, and tenths of minutes.
<u>LONGITUDE</u>	Expressed in degrees, minutes and tenths of minutes.
<u>TAKEN</u>	Date in day, month, and year that core was taken.

CORER TYPE Letters corresponding to sampling device code below.

	<u>Corers</u>	<u>Grabs</u>
HYP	Hydroplastic piston	SPK Shipek Sediment Sampler
HYG	Hydroplastic gravity	HLP Alpine Heavy Duty Grab
KUP	Kullenberg piston	SMS Small Mud Snapper
KUG	Kullenberg gravity	VVS Van Veen Grab
PHL	Phlegar gravity	BED Birge-Ekman Dredge
MEG	Modified Ewing gravity	DLS Dietz-LaFond Snapper
MEP	Modified Ewing piston	OPG Orange Peel Grab
VIB	Vibrocorer	SBS Scoopfish Bottom Sampler
BOM	Boomerang	
EWP	Ewing piston	
EWG	Ewing gravity	

LENGTH Length of core recorded in centimeters as observed in the laboratory.

PENETRATION Penetration of coring device recorded in centimeters as observed in the field.

DEPTH The uncorrected sonic sounding in meters.

ANALYZED Date in day, month, and year that core was analyzed in the laboratory.

I.D. No. Three or four digit laboratory project number followed by consecutive number assigned to each subsample analyzed.

INTERVAL Interval of subsample as measured in centimeters from the top of the core.

MM Particle diameter size intervals based on Wentworth size grades in millimeters.

PER Percent of total sample weight within the given size interval.

GRAVEL, SAND
SILT, CLAY

Percent of total sample weight within the four size classes.

Class ranges are:

1. Gravel - coarser than 2 mm
2. Sand - 2 to 0.0625 mm
3. Silt - 0.0625 to 0.0039 mm
4. Clay - finer than 0.0039

MEAN (MM)

The geometric mean of the distribution expressed in millimeters.

MEAN (PHI)

The logarithmic mean of the distribution expressed in phi units ($-\log_2$) of the diameter in millimeters.

STAN DEV

Standard deviation. A measure of the degree of spread or dispersion of the distribution about the mean expressed in phi units.

$$s = \sqrt{\sum f (X_i - \bar{X})^2 / 100}$$

SKEWNESS

A measure of the asymmetry of the distribution. Positive values denote skewness of the distribution toward the fine particles; negative values denote skewness toward the coarse particles. A normal distribution has a skewness of 0.

$$\text{Skewness} = \frac{1}{100} s^{-3} \sum f (X_i - \bar{X})^3$$

KURTOSIS

A measure of the peakedness of the distribution. Positive values denote a "leptokurtic" distribution more "peaked" than normal. Negative values denote a "platykurtic" distribution, or a distribution more "flat" than normal. A normal curve has a kurtosis of 0.

$$\text{Kurtosis} = \frac{1}{100} s^{-4} \left[\sum f (X_i - \bar{X})^4 \right]^{-3}$$

CACO₃

Percent calcium carbonate of the total weight as determined by the insoluble residue method.

ORG CARBON

Percent organic carbon of the total sample weight as determined by the LECD WR 12 carbon analyzer.

COLOR

Wet sediment color, based on the Geological Society of America Rock-Color Chart, as determined in the laboratory.

NITROGEN

Percent nitrogen of the total sample as determined by the KJELDAHL method.

LOG FOR GRAB SAMPLES

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Project No: 431

Location: NEW LONDON, CONN.

Logged By P.B. LDDMIS
Date Logged 28 JUNE 72

	La No.	Color	Calc. Mat.	Sediment Type	Remarks
* Sample No: 1 Lat: 41° 16.2' N Long: 72° 04.6' W Date: JUNE 1972 Water depth: 20m.	431 1				* THIS LOCATION APPLIES TO ALL SAMPLES. WORM
Sample No: 2 Lat: Long: Date: Water depth: 20m.	431 2				WORM
Sample No: 3 Lat: Long: Date: Water depth: 20m.	431 3				
Sample No: 4 Lat: Long: Date: Water depth: 20m.	431 4				
Sample No: 5 Lat: Long: Date: Water depth: 20m.	431 5				
Sample No: 7 Lat: Long: Date: Water depth: 20m.	431 6				
Sample No: 8 Lat: Long: Date: Water depth: 20m.	431 7				
Sample No: 13 Lat: Long: Date: Water depth: 20m.	431 8				SEVERAL 2-INCH MUSSEL SHELLS REMOVED BY HAND.
Sample No: Lat: Long: Date: Water depth:					

SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARSDEN SQUARE 152 LENGTH 0
 SAMPLE 1 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION 0
 ANALYZED 11 JUL 72

SUBSAMPLE ID. 431 1

DIAM (PHI) DIAM (MM)

PERCENT

< -4	> 16.000	.000
-4 To -3	16.000 To 8.000	.000
-3 To -2	8.000 To 4.000	.000
-2 To -1	4.000 To 2.000	3.597
-1 To 0	2.000 To 1.000	2.249
0 To 1	1.000 To .500	5.957
1 To 2	.500 To .250	14.300
2 To 3	.250 To .125	26.642
3 To 4	.125 To .063	22.256
4 To 5	.063 To .031	4.916
5 To 6	.031 To .016	6.936
6 To 7	.016 To .008	1.020
7 To 8	.008 To .004	3.366
8 To 9	.004 To .002	3.468
9 To 10	.002 To .001	2.147
>10	<.001	3.162

GRAVEL (>2.0 MM) 3.597
 SAND (2.0--.063 MM) 71.399
 SILT (.063--.004 MM) 16.238
 CLAY (<.004 MM) 6.772

MEAN (MM) .0963

MEAN (PHI) 3.376

STANDARD DEVIATION 2.600

SKEWNESS .467

KURTOSIS .918

CALCIUM CARBONATE 13.000
 ORGANIC CARBON .565
 NITROGEN (KJELDAHL) .091

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE 431 TAKEN JUN72 LATITUDE 41°16'20" N MARDEN SQUARE 152-1/2 LENGTH .0 ANALYZED 11 JULY 72
SAMPLE 2 DEPTH 20.0 LONGITUDE 72°4'60" W CORE TYPE SPK PENETRATION .0

SUBSAMPLE ID. 431.2

DIAM (MM) DIAM (MM) PERCENT

<4	>16.000	.000
-4 TO -3	16.000 TO 8.000	.000
-3 TO -2	8.000 TO 4.000	.000
-2 TO -1	4.000 TO 2.000	.606
-1 TO 0	2.000 TO 1.000	.699
0 TO 1	1.000 TO .500	1.864
1 TO 2	.500 TO .250	3.845
2 TO 3	.250 TO .125	11.512
3 TO 4	.125 TO .063	13.726
4 TO 5	.063 TO .031	11.233
5 TO 6	.031 TO .016	16.546
6 TO 7	.016 TO .008	4.428
7 TO 8	.008 TO .004	3.729
8 TO 9	.004 TO .002	8.273
9 TO 10	.002 TO .001	9.438
>10	<.001	14.099

GRAVEL (>2.0 MM) .606

SAND (2.0-.063 MM) 31.648

SILT (.063-.004 MM) 35.936

CLAY (<.004 MM) 31.811

MEAN (MM) .0169

MEAN (PHI) 5.886

STANDARD DEVIATION 3.025

SKEWNESS .052

KURTOSIS -1.045

CALCIUM CARBONATE 10.000

ORGANIC CARBON 1.625

NITROGEN (KJELDAHL) .163

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARDEN SQUARE 152-12 LENGTH .0 ANALYZED 11 JULY 72
 SAMPLE 3 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION .0

SUBSAMPLE ID: 431 3

DIAM (PHI) DIAM (MM)

PERCENT

<-4	216.000	.000
-4 TO -3	16.000 TO 8.000	.000
-3 TO -2	8.000 TO 4.000	.000
-2 TO -1	4.000 TO 2.000	3.091
-1 TO 0	2.000 TO 1.000	1.524
0 TO 1	1.000 TO .500	3.069
1 TO 2	.500 TO .250	7.154
2 TO 3	.250 TO .125	20.866
3 TO 4	.125 TO .063	21.572
4 TO 5	.063 TO .031	10.488
5 TO 6	.031 TO .016	5.741
6 TO 7	.016 TO .008	5.189
7 TO 8	.008 TO .004	4.306
8 TO 9	.004 TO .002	2.539
9 TO 10	.002 TO .001	2.981
>10	<.001	11.482

GRAVEL (>2.0 MM) 3.091

SAND (2.0--.063 MM) 54.184

SILT (.063--.004 MM) 25.723

CLAY (<.004 MM) 17.002

MEAN (MM) .0443

MEAN (PHI) 4.498

STANDARD DEVIATION 3.101

SKEWNESS .293

KURTOSIS -.348

CALCIUM CARBONATE 10.000

ORGANIC CARBON 1.904

NITROGEN (KJELDAHL) .135

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARDEN SQUARE 152-73 LENGTH 0.0 ANALYZED 11 JULY 72
 SAMPLE 4 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION 0.0

SUBSAMPLE ID# 431 4

DIAM (PHI)	DIAM (MM)	PERCENT
<-4	>16.000	0.000
-4 TO -3	16.000 TO 8.000	0.000
-3 TO -2	8.000 TO 4.000	16.415
-2 TO -1	4.000 TO 2.000	6.986
-1 TO 0	2.000 TO 1.000	6.124
0 TO 1	1.000 TO .500	8.872
1 TO 2	.500 TO .250	8.459
2 TO 3	.250 TO .125	8.477
3 TO 4	.125 TO .063	13.434
4 TO 5	.063 TO .031	8.423
5 TO 6	.031 TO .016	8.441
6 TO 7	.016 TO .008	1.616
7 TO 8	.008 TO .004	2.065
8 TO 9	.004 TO .002	2.784
9 TO 10	.002 TO .001	3.233
>10	<.001	4.670

GRAVEL (>2.0 MM) 23.402
 SAND (2.0--.063 MM) 45.366
 SILT (.063-.004 MM) 20.546
 CLAY (<.004 MM) 10.686

MEAN (MM)	183.2
MEAN (PHI)	2.445
STANDARD DEVIATION	3.713
SKEWNESS	.220
KURTOSIS	-.571

CALCIUM CARBONATE	13.000
ORGANIC CARBON	1.956
NITROGEN (KJELDAHL)	.152

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARDEN SQUARE 15242 LENGTH 0' ANALYZED 11 JUL 72
SAMPLE 5 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION 0'

SUBSAMPLE ID. 431.5

DIAM (PHI) DIAM (MM) PERCENT

<-4	>16.000	.000
-4 TO -3	16.000 TO 8.000	.000
-3 TO -2	8.000 TO 4.000	.000
-2 TO -1	4.000 TO 2.000	10.443
-1 TO 0	2.000 TO 1.000	1.909
0 TO 1	1.000 TO .500	2.141
1 TO 2	.500 TO .250	2.835
2 TO 3	.250 TO .125	19.178
3 TO 4	.125 TO .063	36.332
4 TO 5	.063 TO .031	8.649
5 TO 6	.031 TO .016	4.050
6 TO 7	.016 TO .006	2.893
7 TO 8	.008 TO .004	1.880
8 TO 9	.004 TO .002	1.736
9 TO 10	.002 TO .001	.579
>10	<.001	7.376

GRAVEL (>2.0 MM) 10.443
 SAND (2.0-.063 MM) 62.395
 SILT (.063-.004 MM) 17.472
 CLAY (<.004 MM) 9.690

MEAN (MM)	.0850
MEAN (PHI)	3.556
STANDARD DEVIATION	2.912
SKENNESS	.292
KURTOSIS	.792

CALCIUM CARBONATE 11.000
 ORGANIC CARBON 3.352
 NITROGEN (KJELDAHL) .130

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARDEN SQUARE 152-72 LENGTH 0.0 ANALYZED 11 JUL72
 SAMPLE 7 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION 0.0

SUBSAMPLE ID# 431 6

DIAM (MM)	DIAM (MM)	PERCENT
<4	>16.000	.000
=4 TO =3	16.000 TO 8.000	.000
=3 TO =2	8.000 TO 4.000	.000
=2 TO =1	4.000 TO 2.000	.598
=1 TO 0	2.000 TO 1.000	.347
0 TO 1	1.000 TO .500	.502
1 TO 2	.500 TO .250	1.235
2 TO 3	.250 TO .125	29.197
3 TO 4	.125 TO .063	54.574
4 TO 5	.063 TO .031	5.442
5 TO 6	.031 TO .016	3.377
6 TO 7	.016 TO .008	.482
7 TO 8	.008 TO .004	1.061
8 TO 9	.004 TO .002	.772
9 TO 10	.002 TO .001	.965
>10	<.001	1.447

GRAVEL (>2.0 MM) .598
 SAND (2.0-.063 MM) .85.855
 SILT (.063-.004 MM) 10.363
 CLAY (<.004 MM) 3.184

MEAN (MM) .0883
 MEAN (PHI) 3.501
 STANDARD DEVIATION 1.498
 SKEWNESS 1.137
 KURTOSIS 9.169

CALCIUM CARBONATE 8,000
 ORGANIC CARBON .333
 NITROGEN (KJELDAHL) .046

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41° 16.0' N MARDEN SQUARE 152-13 LENGTH 0' ANALYZED 11 JULY 72
 SAMPLE 8 DEPTH 20.0 LONGITUDE 72° 4.60' W COTER TYPE SPK PENETRATION 0'

SUBSAMPLE ID. 431 7

DIAM (PHI)	DIAM (MM)	PERCENT
<-4	>16.000	.000
-4 To -3	16.000 To 8.000	.000
-3 To -2	8.000 To 4.000	.000
-2 To -1	4.000 To 2.000	1.334
-1 To 0	2.000 To 1.000	.364
0 To 1	1.000 To .500	1.884
1 To 2	.500 To .250	15.903
2 To 3	.250 To .125	33.106
3 To 4	.125 To .063	12.569
4 To 5	.063 To .031	10.502
5 To 6	.031 To .016	4.334
6 To 7	.016 To .008	3.917
7 To 8	.008 To .004	3.251
8 To 9	.004 To .002	1.917
9 To 10	.002 To .001	2.250
>10	<.001	8.668

GRAVEL (>2.0 MM) 1.334
 SAND (2.0--.063 MM) 63.827
 SILT (.063--.004 MM) 22.004
 CLAY (<.004 MM) 12.835

MEAN (MM) .0629
 MEAN (PHI) 3.990
 STANDARD DEVIATION 2.824
 SKEWNESS .549
 KURTOSIS 3.83

CALCIUM CARBONATE 11.000
 ORGANIC CARBON .728
 NITROGEN (KJELDAHL) .120

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE TAKEN JUN72 LATITUDE 41 16.20 N MARDEN SQUARE 152-12 LENGTH .0 ANALYZED 11 JUL 72
SAMPLE 13 DEPTH 20.0 LONGITUDE 72 4.60 W CORER TYPE SPK PENETRATION .0

SUBSAMPLE 1D.

431 8

DIAM (PHI) DIA M (MM) PERCENT

< -4	>16.000	.000
-4 To -3	16.000 To 8.000	.000
-3 To -2	8.000 To 4.000	.000
-2 To -1	4.000 To 2.000	.083
-1 To 0	2.000 To 1.000	.166
0 To 1	1.000 To .500	.166
1 To 2	.500 To .250	.291
2 To 3	.250 To .125	.368
3 To 4	.125 To .063	.559
4 To 5	.063 To .031	.611
5 To 6	.031 To .016	.095
6 To 7	.016 To .008	.496
7 To 8	.008 To .004	.120
8 To 9	.004 To .002	.567
9 To 10	.002 To .001	.710
>10	<.001	.767

GRAVEL (>2.0 MM) .083
 SAND (.2.0-.063 MM) 19.551
 SILT (.063-.004 MM) 32.321
 CLAY (<.004 MM) 48.045

MEAN (MM) .0071
 MEAN (PHI) 7.017
 STANDARD DEVIATION 2.729
 SKEWNESS -.107
 KURTOSIS -1.350

CALCIUM CARBONATE 20.000
 ORGANIC CARBON 2.023
 NITROGEN (KJELDAHL) .325

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